REMARKS

Claims 1-47 are pending in the application, of which Claims 16-47 have been withdrawn in response to a restriction requirement. Claims 1-15 have been examined and stand rejected. Through the foregoing amendments, the limitations of original Claim 10 have been incorporated into Claim 1, and Claim 10 has been canceled. The dependency of original Claims 14 and 15 have been amended accordingly. Claim 1 has been further amended to require that some or all of the multiple heaters are independently controllable. Support for this amendment is found in the original specification at page 6, line 23 through page 8, line 25, and elsewhere. Claims 14 and 15 have been further amended to require that a second, different type of living cell is attached to the second population of portions of the temperature responsive layer. Support for this amendment is in the specification at page 8, lines 23-25 and elsewhere. Reconsideration and allowance of Claims 1-9 and 11-15 is respectfully requested.

The Rejection of Claims 1-11 and 14 Under 35 U.S.C. § 103(a) as Being Unpatentable Over Takei et al. (*Macromolecules*, 1994) in View of Carlson et al. (U.S. Patent No. 6,939,515)

Claims 1-11 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takei et al. (*Macromolecules*, 1994) in view of Carlson et al. (U.S. Patent. No 6,939,515). This rejection is respectfully traversed. The Examiner characterizes Takei et al. as disclosing a temperature-responsive layer, which can exist in a first state that binds living cells and can exist in a second state that binds less living cells. The Examiner characterizes Carlson et al. as disclosing an assay device that includes a thermal platform that can support and controllably heat an array. Carlson et al. teaches a system for performing high-throughput preparation and screening of salts and polymorphs of drug candidates, whereas the claimed invention is a device for binding cells or molecules. Claim 1 has been amended to require multiple heaters disposed upon a single surface, where each heater is independently controllable. The thermal platform

disclosed by Carlson et al. is a single heated region that attempts to achieve a "uniform temperature distribution," (see Col. 55, lines 49-52). While several resistors may be required to achieve the uniform temperature distribution, the resistors are not individually controlled so as to allow for selective resistors to be on, and others off. Carlson et al. teaches away from any use of heating elements that would produce an inhomogeneous temperature distribution, whereas the claimed invention utilizes the ability to individually control heating elements so as to selectively bind or unbind molecules. Given the singular nature of the heating apparatus disclosed by Carlson et al., it is submitted that the devices of the claimed invention would not be obvious in light of Takei et al. when combined with Carlson et al.

Additional distinction between Carlson et al. and the present invention can be found in the integration of heating elements on the same body that supports the sample to be analyzed. Carlson et al. discloses a heating cavity (2816) that is created by top (2812) and bottom (2814) pieces, that form a cavity for a substrate to be placed in for heating and analysis (Col. 55, lines 13-14). In contrast, the present invention is directed to a monolithic body that contains heating elements and temperature-sensitive regions on opposing sides of the same body (e.g., a thin film of silicon nitride). Because the present invention contains both heaters and functional regions integrated on the same body, it is submitted that the devices of the claimed invention would not be obvious in light of Takei et al. when combined with Carlson et al.

The heating unit taught by Carlson et al., and cited as prior art by the Examiner, is used for performing melting point analysis (see Col. 55, line 27), and not for stimulating a thermally-responsive film in a device such as the claimed invention. Because the type of apparatus disclosed by Carlson et al. is not in the same field as the claimed invention, and would not be looked to by one of skill in the art as relevant to the particular problem to be solved, it is submitted that the reference is nonanalogous art and there is no teaching, motivation, or

suggestion to combine the reference with Takei et al. For a reference to be analogous art, if it is outside of the field of the claimed invention, "the reference may be considered analogous art if subject matter disclosed therein is relevant to the particular problem with which the inventor is involved." MPEP 2141.01(a). It is submitted that the Carlson et al. reference is both outside of the field of the claimed invention and also not relevant to the problem with which the invention is involved. Accordingly, it is believed that Carlson et al. has been improperly combined with Takei et al. in the rejection of Claims 1-11 and 14. However, even if combined, Carlson et al. does not overcome the deficiencies of Takei et al. in failing to disclose or suggest a device for binding cells having multiple, independently controllable heaters as required by applicants' amended claims.

In view of the above, it is demonstrated that the combination of Takei et al. and Carlson et al. does not render the invention of Claim 1 obvious, or Claims 2-11 and 14 which depend therefrom. Accordingly, the Examiner is respectfully requested to withdraw this ground of rejection.

The Rejection of Claims 12, 13, and 15 Under 35 U.S.C. § 103(a) as Being Unpatentable over Takei et al. (*Macromolecules*, 1994) in View of Carlson et al. (U.S. Patent No. 6,939,515), in Further View of Lahann et al. (U.S. Patent No. 7,020,355)

Claims 12, 13, and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takei et al. (*Macromolecules*, 1994) in view of Carlson et al. (U.S. Patent No. 6,939,515), in further view of Lahann et al. (U.S. Patent No. 7,020,355). Claims 12, 13, and 15 depend directly or indirectly from independent Claim 1. The Examiner builds upon the previous rejection of Claim 1 (based on Takei et al. in view of Carlson et al.) by citing Lahann et al. as further disclosing the use of assays using proteins and antibodies. It is submitted that Takei et al. and Carlson et al. do not combine to render Claim 1 obvious for the reasons given above. The

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addition of the teachings of Lahann et al. does not cure any of these defects and thus does not render Claims 12, 13, and 15 obvious within the meaning of 35 U.S.C. § 103(a).

In view of the above, it is demonstrated that the combination of Takei et al., Carlson et al., and Lahann et al. fail to teach, suggest, provide motivation to make, or otherwise render obvious the claimed method of the invention. Accordingly, applicants respectfully request removal of this ground of rejection.

Conclusion

In view of the foregoing amendments and comments, it is believed that amended Claims 1-9 and 11-15 are in condition for allowance. Reconsideration and favorable action is requested. If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone applicants' attorney at the telephone number set forth below.

Respectfully submitted,

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